

What Is Claimed Is:

1. A method of updating meta-data associated with a component, wherein the meta-data includes a plurality of meta-data elements, the method comprising:

verifying signatures associated with the component meta-data;  
accepting a first meta-data supplement comprising a plurality of meta-data elements;  
verifying signatures associated with the first meta-data supplement;  
authenticating the first meta-data supplement; and  
updating the meta-data elements associated the component with values of the plurality of meta-data elements associated with the first meta-data supplement.

2. The method of claim 1 wherein the component comprises a content portion and a meta-data portion, and wherein verifying signatures associated with the component meta-data comprises:

computing a digest of the content portion;  
decrypting the signature with a public key of the signer; and  
comparing the computed digest with the decrypted signature.

3. The method of claim 2 wherein the first meta-data supplement comprises a component having a content portion and a meta-data portion, and wherein verifying signatures associated with the first meta-data supplement comprises:

computing a digest of the content portion of the first meta-data supplement;

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decrypting the signature with a public key of the signer of the first meta-data supplement; and

comparing the computed digest with the decrypted signature.

4. The method of claim 3 wherein authenticating the first meta-data supplement comprises determining if the component and the first meta-data supplement have a common signer.

5. The method of claim 1 further comprising  
accepting a second meta-data supplement comprising a second plurality of meta-data elements;  
verifying signatures associated with the second meta-data supplement;  
authenticating the second meta-data supplement;  
sorting the first and second meta-data supplements to provide a sorted plurality of meta-data supplements; and  
updating the meta-data associated with the component with values of corresponding meta-data elements from the sorted meta-data supplements.

6. The method of claim 5 wherein each meta-data supplement includes a time stamp, and sorting the first and second meta-data supplements comprises sorting the meta-data supplements according to the time stamps.

7. The method of claim 6 further comprising verifying compatibility between a the meta-data associated with a component and a meta-data supplement.

8. The method of claim 7 wherein verifying compatibility comprises determining that like-named meta-data elements associated with the component and the meta-data supplement have the compatible types and compatible mutability attributes.

9. A method for use with digital components, the method comprising:

accepting a digital component, the digital component comprising content and component meta-data;

accepting a first meta-data supplement, the first meta-data supplement comprising first target meta-data and first supplement meta-data;

updating the component meta-data with the first target meta-data.

10. The method of claim 9 further comprising:  
storing the digital component; and  
storing a copy of the component meta-data,  
wherein updating the component meta-data comprises updating the  
copy of the component meta-data.

11. The method of claim 10 further comprising:  
accepting a second meta-data supplement, the second meta-data  
supplement comprising second target meta-data and second supplement meta-data;  
updating the component meta-data with the second target meta-data.

12. The method of claim 10 further comprising sorting the first and  
second target meta-data, wherein updating the component meta-data with the first and  
second target meta-data comprises updating the component meta-data with the sorted  
target meta-data.

13. The method of claim 12 wherein sorting the first and second  
target meta-data comprises sorting the first and second meta-data chronologically.

14. The methods of claim 9 further comprising:  
determining whether the component meta-data is mutable; and  
determining whether the target meta-data is compatible with the  
component meta-data.

15. The method of claim 14 wherein the component meta-data and  
target meta-data each comprise a plurality of meta-data elements having an associated  
name, type, value, and mutability attribute, and where in determining whether the  
target meta-data is compatible with the component meta-data comprises:  
selecting a first meta-data element from the target meta-data;  
determining whether the component meta-data includes a like-named

meta-data element;

determining whether the first meta-data element and the like-named meta-data element have compatible mutability attributes; and

determining whether the first meta-data element and the like-named meta-data element have compatible types.

16. The method of claim 15 wherein the component meta-data includes a first meta-data signature and the target meta-data includes a second meta-data signature, the method further comprising:

verifying the first and second meta-data signatures; and  
updating the component meta-data with the first target meta-data only if the meta-data signatures are successfully verified and the first and second meta-data signatures are from the same signer.

17. The method of claim 16 wherein the first and second meta-data signatures comprise digital signatures using public key cryptography.

18. The method of claim 9 further comprising:  
storing the digital component in a repository ; and  
storing the first meta-data supplement in the repository;  
wherein updating the component meta-data with the first target meta-data is performed when the first-meta data is stored in the repository.

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19. Apparatus for processing digital components, the apparatus comprising:

a storage device; and

a server, wherein the server is programmed to:

accept a digital component, the digital component comprising content and component meta-data;

store the digital component on the storage device;

accept a first meta-data supplement, the first meta-data supplement comprising first target meta-data and first supplement meta-data;

store the first meta-data supplement on the storage device; and

update the component meta-data with the first target meta-data.

20. The apparatus of claim 19 wherein the server is further programmed to:

accept a second meta-data supplement, the second meta-data supplement comprising second target meta-data and second supplement meta-data;

store the second meta-data supplement on the storage device;

and

update the component meta-data with the second target meta-data.

21. The apparatus of claim 20 wherein the server is further programmed to use the first and second target meta-data in chronological order when updating the component meta-data.

22. The apparatus of claim 20 wherein the server is further programmed to verify digital signatures associated with the component and target meta-data.

23. A method of updating meta-data associated with a component, wherein the meta-data includes a plurality of meta-data elements, the method comprising:

- verifying signatures associated with the component meta-data;
- accepting a plurality of meta-data supplements, each comprising a plurality of meta-data elements;
- verifying signatures associated with each one of the plurality of meta-data supplement;
- authenticating each one of the plurality of meta-data supplement; and
- updating meta-data elements associated the component with values of corresponding meta-data elements from the plurality of meta-data supplements.

24. The method of claim 25 wherein each meta-data supplement includes a time stamp, the method further comprising sorting the meta-data supplements according to the time stamps.

25. The method of claim 24 wherein updating the meta-data associated with the component with values of corresponding meta-data elements comprises updating the meta-data associated with the component with values of corresponding meta-data elements from the sorted meta-data supplements.